

Psychological distress and its predictors in AIDS orphan adolescents in Addis Ababa city: A comparative survey

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Abstract

Back ground: In developing countries the number of children orphaned by AIDS is growing rapidly. Consequently, the psychological well-being of these children has become a serious concern.

Objectives: To assess the psychological distress of AIDS orphans as compared to non-AIDS orphan adolescents and factors related to it, in Addis Ababa.

Methods: Comparative cross-sectional design combining both quantitative and qualitative methods was used. An equal number of 438 subjects were included in this study with each group of AIDS and non-AIDS orphan adolescents between 11-18 age groups. Structured interviewer administered questionnaire and scales including HAD, Rosenberg's and MPSS scales were used to measure the orphans' level of depression, anxiety, self-esteem and their perceived social support.

Result: Among the study participants, 279 (34.7%) orphan adolescents where 157 (39.1%) of AIDS and 122 (30.3 %) of non-AIDS orphan adolescents were depressed in the week before the survey. Moreover, 301(37.4%) orphan adolescents where 164 (40.8%) of AIDS and 137 (34.1%) of non-AID once were anxious. However, the difference observed in depression and anxiety [OR (95% CI) =1.164(0.733, 1.754) & 0.88(0.57, 1.33)] was not statistically significant. The main predicator variables of depression and anxiety in both study groups were their perceived social support and self-esteem. Factors such as discrimination, school enrollment, physical abuse, child labor were also identified as predicators.

Conclusion : A large proportion of orphan adolescents are having psychological problems that can affect their present and future life. Thus, a more focused and concerted effort is needed to improve their mental health. [*Ethiop. J. Health Dev.* 2011;25(2):135-142]

Introduction

HIV remains a global health problem of unprecedented dimensions (1).The epidemic can be depicted as a succession of three waves. The first wave of HIV infections was followed by the second wave of AIDS illness and death which in turn was followed by a wave of HIV/AIDS orphaned children (2). In 2007, there were 15 million officially reported AIDS orphans globally (3). An estimated 5,459,139 orphans of whom 16 % were HIV and AIDS orphans existed in Ethiopia in 2008 (3,4). In Addis Ababa alone, there were 112,617 AIDS orphans in 2007 (5).

Orphan-hood is frequently accompanied with multidimensional problems including prejudice, reduced access to health and school services, inadequate food, sexual abuse and others that can further jeopardize children's prospects of completing school (1, 2). Moreover, the death of one or both parents has a profound and lifelong impact on the psychological well-being of children. Adolescents in particular are at increased risk for unresolved or complicated bereavement because of their developmental

vulnerability and emotional dependency. Being an AIDS orphan may further place them at heightened risk of prolonged mental problems (6, 2).

Presently, there is very little research undertaken in Africa despite the growing concern about the psychological well-being of orphans (7). In light of this, the general objective of this study was to assess psychological distress of AIDS orphan adolescents as compared to non-AIDS orphans and to identify factors associated with the distress. More specifically, the study was intended to assess and compare the level of depression and anxiety between AIDS and non-AIDS orphan adolescents, identify factors related to depression and anxiety, indicate main intervention areas for improving their situation and make concrete recommendations to help them in asserting their rights. Moreover, the result of the study can point out areas for further research by future investigators and provide insight into program planners and policy makers to review and change or strengthen existing care and support programs for the orphans in the country.

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Methods

The study was conducted in Addis Ababa, Ethiopia in March 2010. An institution-based comparative cross-sectional survey with both quantitative and qualitative methods was used. Out of thirty nine organizations that have been providing care and support to orphans in Addis Ababa as of 2008, thirty five were included in the study (8). Four organizations were excluded from the study as they only donated money and coordinated the care and support programs.

For the qualitative study, the population included AIDS and non-AIDS orphans adolescents aged 11-18 years sampled from orphan adolescents that were registered in the randomly selected organizations. AIDS orphan adolescents included in the study were children between 11-18 years who have lost one or both parents due to the HIV AIDS. The non-AIDS orphan adolescents were also from same age category, but had lost one or both parents due to other causes. The total number of orphan adolescents selected for the study was 876 with 438 in each study group. To calculate the total sample size, a two population proportion formula, 1:1 ratio for both the study and comparison groups, confidence level of 95%, a power of 80%, non-response rate of 10% design effect of two have been utilized.

Furthermore, a multi-stage cluster sampling technique was employed to reach the study units. Following WHO's recommendation, a maximum of 50 respondents per Primary Sampling Unit (PSU) (9), a total of sixteen organizations were randomly selected to satisfy the sample size (9). Then, proportional allocation to size technique was applied to decide the number of AIDS and non-AIDS orphans to be included in the study for each organization. Finally, simple random sampling technique was used to select the study subjects. Registration books or files of the organizations were used to separate AIDS orphan adolescents from non-AIDS orphan ones. However, orphan adolescents whose parents died within the past six months point to the study and diagnosed as HIV positive or who were apparently sick during data collection were excluded from the study.

The quantitative data were collected using a pretested structured interviewer-administered questionnaire by trained research assistants recruited from candidates who had completed grade twelve.

For qualitative methods, five in-depth interviews were conducted with purposively selected key informants that were involved in giving care and support within the caretaker organizations. A semi-structured interviewer-guided checklist was used to collect the qualitative data. The major focus areas of the in-depth interview were identifying the type of support provided, the risk factors in psychological distress, the major challenges that organizations faced in providing the psychological support service.

The dependent variables of the study were anxiety and depression statuses of the orphans. These variables were measured using the Hospital Anxiety and Depression Scale (HADS) and was used to measure feelings of depression and anxiety levels in the week prior to the survey. The scale included 14 items, consisting of 7 anxiety and 7 depression items from which a separate anxiety and depression sub-scale scores were calculated. Each item score ranged from zero to three. Scores above seven on the subscales were classified as having depression or anxiety. This scale had been used within community settings for all age groups from adolescence upwards (12, 13,14). The internal consistency of the scales in our study subjects were Cronbach's alpha of 0.87 and 0.76 for the anxiety and depression subscales respectively.

The independent variables included socio-demographic characteristics (age, sex, ethnicity, house hold size, education status); individual factors included perceived social support, self-esteem, changing residence place, type of care giver, providing care for sick parents, witnessing the death of parents, and visiting their siblings and relatives.

On the other hand, Rosenberg's scale was used to measure the self-esteem of the orphan adolescents. Consisting of 10 items, with a four-point response ranging from strongly agree to strongly disagree, the scale has been translated into many languages and used internationally for over thirty years. Over years of application, it has consistently been found to be reliable and valid. The internal consistency in our scale was Cronbach's Alpha= 0.65 and after removal of item number-eight, it became 0.73. Furthermore, the score of the items were distributed normally for both study groups. This scale has also been used in Ethiopia in the past (15, 10).

To measure their perceived social support, a multidimensional scale of perceived social support (MSPSS) was adopted. Responses for the items in the scale ranged from strongly agree to strongly disagree and the possible scores for the scale ranged from 12 to 60 (16). What is more, the scale manifested adequate reliability and validity across a variety of population (17). In this study, the scale had an internal consistency of 0.89 in Cronbach's alpha and the scores were also distributed normally for both study groups.

Social factors such as friends/community/family discriminations, physical and sexual violence, and child labor were assessed using a questionnaire that was developed on the basis of information obtained from of the review relevant literature. The questionnaire was prepared first in English and then translated into Amharic (local language) with the help of a language expert. To check the accuracy of translation, the Amharic version was retranslated back to English by another person who

had not had any access to the original English version of the questionnaire prior to taking up this task.

Data entry and processing was done using SPSS 16 version. Descriptive statistics were used for describing the socio-demographic factors, independent sample t-test was used to compare the means of continuous variables, and logistic regressions were used to identify the significant predictor variables. P-Value less than 0.05 is considered as significant. Moreover, the qualitative data was analyzed manually by thematic approach and the findings triangulated with quantitative ones.

Ethical clearance was obtained from Jimma University and Addis Ababa health Bureau. Consent was obtained from the care takers of the orphan adolescents and adolescents.

Results

A total of 804 orphan adolescents, (402 of each study group) gave valid responses making the response rate for the study of 92%. Of these, 244 (60.7%) and 210 (52.2%) were female AIDS and non-AIDS orphan adolescents respectively. Two hundred forty (59.7%) of AIDS and 102 (25.4%) non-AIDS orphans were double orphaned. The majority of the orphans, 368 (91.5%) of AIDS orphans and 383 (95.3%) non-AIDS were enrolled in school when this survey was underway. The reasons for not enrolling in schools included giving priority to money earning activities, feeling of hopelessness and home chores (Table 1). One hundred sixty seven (41.5%) of the AIDS orphans provided care for their parents. Only 65 (16.2%) and 54 (8.1%) of AIDS and non-AIDS orphan adolescents were provided counseling services, respectively.

Table 1: The Socio-demographic Characteristics of AIDS and Non-AIDS Orphan Adolescents in Addis Ababa, Ethiopia, May, 2010 (N₁=402 & N₂=402)

Socio -Demographic Variables (Characteristics)	AIDS orphans N (%)	Non -AIDS orphans N (%)
Sex		
Male	158 (39.3)	192 (47.8)
Female	244 (60.7)	210 (52.2)
Age, Mean age(SD)	14.50 (1.974)	14.27 (2.048)
Religion		
Orthodox (%)	358 (89.1)	361 (89.8)
Catholic (%)	2 (0.5)	4 (1.0)
Protestant (%)	20 (5.0)	20 (5.0)
Muslim (%)	22 (5.5)	16 (4.0)
Death of parents		
Father only (%)	121 (30.1)	217 (54.0)
Mother only (%)	41 (10.2)	83 (20.6)
Both (%)	240 (59.7)	102 (25.4)
Head of the household		
Adult male	95 (23.6)	95 (23.6)
Adult Female	279 (69.4)	296 (73.6)
Child	26 (6.5)	11 (2.7)
current school enrolment		
Yes (%)	368 (91.5)	383 (95.3)
No (%)	34 (8.5)	19 (4.7)
Reason for not enrolling in school		
Losing hope (%)	9 (26.4)	2 (10.5)
To get money (%)	13 (38.2)	9 (47.3)
To work in home (%)	2 (5.9)	2 (10.5)
Lose of interest in education (%)	2 (5.9)	1 (5.3)
To care for my sisters and brothers (%)	4 (11.8)	2 (10.5)
Others (%)	4 (11.8)	3 (15.9)

The mean score of AIDS orphans' self-esteem was lower than the mean score of non-AIDS orphan adolescents [$t=3.902$, $P=0.002$] (Table 2).

One hundred fifty seven (39.1%) of AIDS and 122 (30.3%) non-AIDS orphans were depressed during the week prior to this survey. In addition to these, 164 (40.8%), 137 (34.1%) of AIDS and non-AIDS orphan adolescents were anxious, respectively. Comparing the two groups, AIDS orphan adolescents were 1.47 [OR (95%CI) =1.47(1.098, 1.970), $P=0.01$] times more likely

to be depressed than non-AIDS once. Whereas the likelihood of having anxiety in AIDS orphans was 1.3 [OR (95%CI) =1.3(1.001, 1.775), $P=0.049$] times higher than non-AIDS orphans. However, when controlling for cofounders including socio-demographic variables, individual factors and social factors, there was no statistically significant difference in depression and anxiety levels between the two study groups [OR (95%CI) =1.164(0.733, 1.754) & 0.88 (0.57, 1.33)] respectively (Table 3).

Table 2: Comparison of the score of self –esteem and perceived social support between AIDS and non-AIDS Orphan Adolescents, Addis Ababa, Ethiopia, 2010 (N₁=402 & N₂=402)

Variables	Orphan type	M(±SD)	Median	t- test	P-value
Self-esteem score	AIDS orphans	18.9 (±5.35)	19	-3.902	P=0.002
	Non-AIDS orphans	19.9 (±4.52)	21		
Perceived Social-support score	AIDS orphans	42.9(± 11.8)	45	-1.48	P=0.138
	Non-AIDS orphans	44.1(±11.54)	46		

Table 3: Proportion of AIDS and Non-AIDS Orphan Adolescents who were Anxious and Depressed within the Last week before the Survey, In Addis Ababa, Ethiopia, 2010 (N₁=402 & N₂=402)

Depression	Depressed	Non-Depressed	Crud OR(95%CI)	Adjusted OR
AIDS orphans	157(39.1%)	254(60.9)	1.47(1.09,1.97)	1.16(0.77,1.75)
Non-AIDS Orp. Adol.	122(30.3%)	280(69.7)	1	1
Anxiety	Anxious	Non-Anxious	Crud OR(95%CI)	Adjusted OR
AIDS orphans	164(40.8%)	238(59.2)	1.33(1.001,1.77)	0.88(0.58,1.33)
Non-AIDS Orp. Adol	137(34.1%)	265(65.9)	1	1

Those AIDS orphan adolescents who were not enrolled in schools, living with non-relatives, engaged in income generating activities and discriminated by friends were [OR (95% CI) = 3.29 (1.01,10.67), 2.89 (1.09,7.66), 2.99 (1.44,6.22) and 5.05 (1.37,18.57)] more likely to be depressed as compared to those who were not respectively (Table 4a & b). From the in-depth interview, a man aged 40 said that “we provide care for orphans in an orphanage but at the end they become aggressive, hopeless and develop inappropriate behavior. I suggest that orphans should live with relatives”. Similarly, being discriminated by the community, being engaged in income generating

activities, and not being enrolled in schools were identified as risk factors for having anxiety [OR (95% CI) = 16.85 (3.1,91.74) , 4.18 (1.84,9.47), & 3.78(1.03,13.75)], respectively. Moreover, as compared to AIDS orphan adolescents living with father those living with their mothers, grandparents and uncle/aunt were less likely to be anxious [OR(95% CI)=0.2(0.04, 0.85) ,0.15(0.02,0.86), 0.09(0.01,0.65)] respectively (Table 4a & b). From the in-depth interview a man aged 35 also said that “..... there is nothing like making a mother live longer, not only for her children psychological health but also for their well-being.”

Table 4a: Final logistic regression model to predict probability of depression in AIDS orphan adolescents, Addis Ababa, Ethiopia, 2010 (N=402)

	Depressed	Non-depressed	Crude OR (95% CI)	Adjusted OR (95% CI)
School enrolment				
Yes	130 (35.3)	238 (64.7)	1	1
No	27 (79.4)	7 (20.6)	7.06 (2.9, 16.66)	3.29 (1.01, 10.67)
Living with relatives				
Yes	138 (37.3)	232 (62.7)	1	1
No	19 (59.4)	13 (40.6)	2.45 (1.17, 5.13)	2.89 (1.09, 7.66)
Engaging in income generating activities				
Yes	40 (62.5)	24 (37.5)	3.05 (1.75, 5.3)	2.99 (1.44, 6.22)
No	117 (35.3)	214 (64.7)	1	1
Friends discrimination				
Yes	22 (81.5)	5 (18.5)	7.79 (2.88, 21.0)	5.05 (1.37, 18.57)
No	135 (36.1)	239 (63.9)	1	1
Counseling service				
Yes	14 (21.5)	51 (78.5)	1	1
No	143 (43.4)	194 (57.6)	2.68 (1.43, 5.04)	2.25 (1.024, 4.97)
Self-esteem			0.84 (0.8, 0.88)	0.86 (0.81, 0.91)
Perceived support			0.90 (0.88, 0.92)	0.93 (0.91, 0.95)

In non-AIDS orphan adolescents: being discriminated by friends, changing residence after the death of parents, being involved in home chores and witnessing the death of parents [OR (95% CI)=16.21 (2.57,102.15), 2.27 (1.23,4.20), 3.26 (1.68,6.34), and 1.96 (1.03,3.73)] were identified as significant predictors of anxiety, respectively. Furthermore, changing a residence was found to be as a risk factor for being depressed [OR (95% CI) = 3.00 (1.53, 5.88)] (Tables 5 a & b). For both study groups, getting a counseling service was found as protecting factors from depression in AIDS orphan adolescents [OR (95% CI) = 2.25(1.024, 4.97)].

The common statistically significant predictors of depression and anxiety in both groups were score of self esteem and perceived social support. In AIDS orphans per unit increase in score of self-esteem the probability of

being depressed and anxious declined by? 0.86 and 0.82 [OR (95%CI) = 0.86 (0.81,0.91) and 0.82 (0.76,0.86)], respectively. In non-AIDS orphan adolescents per unit increase in score of self esteem, the probability of being depressed and anxious declined by 0.81 and 0.80 [OR (95% CI = 0.81 (0.75,0.87) and 0.80 (0.74 0.86), respectively. Regarding the score of their perceived social support, in AIDS orphan adolescents per unit increase in score of their perceived social support the probability of being depressed and anxious declined by 0.93 and 0.95 [OR (95% CI = 0.93(0.91, 0.95) and 0.95 (0.92,0.96)], respectively. Similarly in non-AIDS orphan adolescents per unit increase in score of perceived social support, the probability of being depressed and anxious declined by 0.92 [(95% CI)=] 0.92(0.9,0.95) and 0.92 (0.89,0.97)] respectively.

Table 4b: Final logistic regression to predict the probability of anxiety in AIDS orphan adolescents, in Addis Ababa, Ethiopia, 2010 (N1=402 & N2=402)

	Anxious	Non-anxious	Crude OR (95% CI)	Adjusted OR (95% CI)
School enrolment				
Yes	137 (37.2)	231 (62.8)	1	1
No	27 (79.4)	7 (20.6)	6.5 (2.76, 15.33)	3.78 (1.03, 13.75)
Marital status				
Single	141 (37.7)	233 (62.3)	1	1
Boy/Girl Friend	21 (80.8)	5 (19.2)	3.89 (1.65, 9.19)	4.8 (1.15, 19.91)
Engaging in income generating Activities				
Yes	46 (71.7)	18 (28.1)	4.7 (2.62, 8.54)	4.18 (1.84, 9.47)
No	116 (35)	215 (65)	1	1
Community discrimination				
Yes	25 (92.6)	2 (7.4)	21.2 (4.95, 90.9)	16.85 (3.1, 91.74)
No	139 (37.1)	236 (62.2)	1	1
Type of care provider				
Father	12 (70.6)	5 (29.4)	1	1
Mother	34 (32.1)	72 (67.9)	0.19 (0.06, 0.60)	0.2 (0.94, 0.85)
Brother/sister	49 (53.8)	42 (46.2)	0.49 (0.16, 1.49)	0.24 (0.04, 1.48)
Grandparents	32 (33.7)	63 (66.3)	0.21 (0.07, 0.65)	0.15 (0.02, 0.86)
Uncle/aunt	10 (31.1)	42 (68.9)	0.19 (0.07, 0.61)	0.09 (0.01, 0.63)
Non-relatives	17 (68)	8 (32)	0.88 (0.23, 3.38)	0.33 (0.04, 2.28)
Self-esteem			0.82 (0.7, 0.86)	0.82 (0.76, 0.86)
Perceived support			0.90 (0.88, 0.92)	0.95 (0.92, 0.96)

Furthermore, both self-esteem and perceived social support explained the largest percent of variation as compared to other predictor variables. In AIDS orphans 8.3% ($R^2=0.083$, $P<0.001$) of the variance in depression was explained by the score of their self-esteem and their perceived social support. Moreover, 10.4% ($R^2=0.104$, $P<0.001$) and 9.5% ($R^2=0.095$, $P<0.001$) of the variance in anxiety was explained by perceived social support and self-esteem respectively. In non-AIDS orphan adolescents the 10.4% ($R^2=0.104$, $P<0.001$) and 9.5%

($R^2=0.095$, $P<0.001$) of the variance in depression was explained by perceived social support and self-esteem, respectively. 11% ($R^2=0.11$, $P<0.001$) and 9.8% ($R^2=0.098$, $P<0.001$) of the variance in anxiety was explained by self-esteem and perceived social support. A man of 35 years said, "I believe that fulfilling all materials that they need didn't mean anything for them, what they really need is to be loved and cared by their care givers".

Table 5a: Final logistic regression model to predict probability of Depression in non-AIDS orphan adolescents, Addis Ababa, Ethiopia, 2010 (N=402)

	Depressed	Non-depressed	Crude OR (95% CI)	Adjusted OR (95% CI)
Changed Residence				
Yes	49 (39.5)	75 (60.5)	1.83 (1.17, 2.87)	3.00 (1.53, 5.88)
No	73 (26.3)	205 (73.7)	1	1
Type of care giver				
Father	2 (53.7)	19 (46.3)	1	1
Mother	46 (26)	131 (74)	0.3 (0.15, 0.61)	0.26 (0.10, 0.69)
Uncle/Aunt	13 (22.8)	44 (77.2)	0.25 (0.1, 0.61)	0.21 (0.062, 0.69)
Non-relatives	1 (33.3)	2 (66.7)	0.43 (0.03, 5.14)	0.103 (0.01, 0.60)
Self-esteem			0.78 (0.73, 0.82)	0.81 (0.75, 0.87)
Perceived support			0.90 (0.88, 0.92)	0.92 (0.90, 0.95)

Table 5b: Final logistic regression model to predict probability of Anxiety in non-AIDS orphan adolescents, Addis Ababa, Ethiopia, 2010 (N=402)

	Anxious	Non-Anxious	Crude OR (95% CI)	Adjusted OR (95% CI)
Friends' discrimination				
Yes	18 (90)	2 (10)	19.9 (4.5, 87.10)	16.2 (2.57, 102.15)
No	119 (31.2)	263 (68.8)	1	1
Changed living place				
Yes	53 (42.7)	71 (57.3)	1.82 (1.11, 2.67)	2.27 (1.23, 4.20)
No	84 (30.2)	194 (69.8)	1	1
HHs chores				
Yes	49 (59)	34 (41)	3.78 (2.29, 6.25)	3.26 (1.68, 6.34)
No	88 (27.6)	231 (72.4)	1	1
Witnessing death of parents				
Yes	45 (41.3)	64 (58.7)	1.93 (1.11, 3.92)	1.96 (1.03, 3.73)
No	92 (31.4)	201 (68.6)	1	1
Self-esteem			0.77 (0.73, 0.82)	0.80 (0.74, 0.86)
Perceived support			0.90 (0.88, 0.92)	0.92 (0.89, 0.97)

Discussion

In this study it was found out that both AIDS and non-AIDS orphan adolescents were having psychological problems. However, there was no significant difference in prevalence of depression and anxiety between the two groups. This finding was similar to the study in South Africa which compared AIDS, non-AIDS and non-orphaned adolescents (18). However, in a study in Uganda, AIDS orphan adolescents were more depressed and anxious as compared to non-orphaned adolescents (19). The possible explanation for no difference in depression and anxiety could be losing a parent irrespective of the cause of the parent death may be enough to expose the orphans equally to depression and anxiety. In most of the family parent's cause of death is not communicated to children especially if the parent died due to HIV/AIDS, which may have resulted in the lack of difference, however it needs further research.

In this study it was also found out that the higher the self-esteem and perceived social support the lower was the probability of being anxious and depressed in both types of orphan adolescents this is similar to studies done in Uganda, South Africa and China (20, 21, 22). Therefore, these findings suggest that higher self-esteem and strong perception of social support may lessen the deleterious effect of exposure to psychological problems. Moreover, both variables explained the largest variation in both groups indicating that the attitude towards themselves

and community do really affect the mental health of the orphan adolescents.

Adolescents exposed to violation of their right are at increased risk of mental health problems (23). Similar to study in South Africa, it was found that stigma and discrimination, are highly likely to result in major emotional problems in both AIDS and non-AIDS orphan adolescents (24, 25). However, the level of discrimination was reduced by 9 fold for both friends and society as compared to the result found in the Ethiopian orphan national survey (26). This may be the effect of the large number of interventions taken against stigma and discrimination.

Moving to a new area leaving behind friends were significant predictors of depression and anxiety. The literature also indicated that moving to a new residence, leaving behind friends and school compounding as a result of loss of parents will likely result in major emotional problems (25). This indicates that, leaving ones accustomed residence may create additional stress that predisposes to further psychological problems.

Unlike the study in South Africa, orphan adolescents that were not enrolled in school were more likely to be depressed and anxious (27). The study also indicated that engaging in income generating activities and home chores which they assumed affects their education and

health were identified as statistically significant predictors of both depression and anxiety in orphan adolescents.

Moreover, living with non-relatives was identified as a risk factor for developing psychological distress in both types of orphan adolescents. Similarly, a study which compared the mental health of adolescents, who were in kinship and non-kinship care, indicated that those in kinship care were less likely to have mental health problems (28). This finding points out that relatives do provide better care as compared to non-relatives. It was also found that orphaned adolescents who live with their fathers were more likely to develop psychological distress as compared to those living with their mothers, grandparents or uncles and aunts. This finding contradicted the findings of a study in South Africa, where orphans who were cared by grandparents reported high levels of anxiety and depression (18). This may be due to the fact that Ethiopian males culturally play little role in providing care for their children even after the death of the mother.

Even though the majority of the orphan adolescents were having a psychological problem, only small proportions of them (16.2% AIDS and 8.1% non-AIDS orphans) were provided with counseling services. This low coverage signifies the amount of attention given by all type of care providers for psychological support as compared to material support. Similarly, in a study done in Uganda, only material support did not show any relationship with the psychological outcomes for both AIDS and non-AIDS orphan adolescents (19).

Furthermore, 41% of AIDS orphan adolescents had provided care to their sick parents. This indicates that they are also at a high risk of acquiring the disease from their parents if they did not take the appropriate care, even though the level of risk depends on the type of care they provide to their parents.

This study has some methodological limitations. First, orphans not registered by the organization were not included. Therefore the study finding could not be generalized to all orphan adolescents living in Addis Ababa. Second, adolescents who were living with both of their parents were not included in the study. Hence it was not possible to compare if non-orphaned and orphaned adolescents were both stressed. Therefore, it's difficult to conclude the stress suffered by the orphaned adolescents in this study is definitely a result of being orphaned. Furthermore, orphans with incomplete personal files were excluded from the study.

In conclusion, large proportions of orphan adolescents were having psychological problems that which certain to affect their present and future life. Care givers of orphan adolescents, in addition to providing material support such as educational materials and medical and food

support, should also provide psychological support, especially focusing on identified predictors.

Further studies should be made to compare the psychological health of AIDS, non-AIDS and non-orphan adolescents; to evaluate the effect of care and support programs on the mental health of orphan adolescents; and to assess the risk factors for adolescents' acquiring HIV while providing care to their sick parents.

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References

1. UNAIDS. report on the global AIDS epidemic, Switzerland, WHO Library Cataloguing, in publication data, 2008. Retrieved on September 19, 2009 /www.unaids.org/.
2. Smart R. Policies for orphans and vulnerable children: A Framework for moving ahead, 2008. Retrieved September 19, 2009; www.policyproject.com/.
3. FXB International. Eighth World AIDS Orphans, 2009. Retrieved on September 23, 2009, www.worldaidsorphans.org.
4. FHAPCO 2007 Annual HIV/AIDS monitoring and evaluation report. Artistic Printing Press, Addis Ababa, Ethiopia
5. AAHAPCO. HIV/AIDS in Addis Ababa, 2007. Retrieved on October 3, 2009, www.AA.HHAPCO.report.htm.
6. Xiaoming L. Psychopathological developmental framework. Journal of the Association of Nurses in AIDS Care, 2008;19(2):147-157.
7. Cluver LD. The Psychological well-being of children orphaned by AIDS in Cape Town. Annals of General Psychiatry, South Africa, 2006;5(6).
8. AAHAPCO. Addis Ababa HIV/AIDS care and support Forum, You can't do it Alone! Together, We Can Make a Difference. Membership Profile, 2008.
9. Ethiopian Science and Technology Commission. Health Research Methods (Training Module 2). Health Department Addis Ababa, Ethiopia, June 2005. Retrieved on September 23, 2009 <http://www.ethionet.et/estc>.
10. Feshea W/Michael Tadesse. Educational Challenges of AIDS orphaned children and Possible Solution in Addis Ababa. unpublished master thesis, University of Addis Ababa, June 2003.
11. WHO. Sampling guideline for participating countries. World Health Survey (WHS). Retrieved on January 3, 2010. www.who.int/healthinfo/survey/en/index.html.
12. Oxford University Press. Hospital Anxiety and Depression Scale. A Dictionary of Nursing,

- Encyclopedia, 2008. Retrieved on January 18, 2010
[Http://WWW.Encyclopedia.com/](http://WWW.Encyclopedia.com/)
13. Colin R. Martin. What does the hospital anxiety and depression scale (HADS) really measure in liaison psychiatry settings? *Current Psychiatry Reviews* 2005;1(1): 69-73.
 14. Abiodun OA, A validity study of the hospital anxiety and depression scale in general hospital units and a Community, sample in Nigeria. *British Journal of Psychiatry* 1994;165:669-672.
 15. Silber E, Tippett J. Self-esteem: Clinical assessment and measurement validation. *Psychological Reports* 1965;16:1017-1071.
 16. Nakigudde J, Musisi S, Airaksinen E, Agren H. Adaptation of the multidimensional scale of perceived social support in Ugandan setting. *African Health Sciences* 2009;9(1):35-41.
 17. Weinstock J, Petry NM. Pathological gambling college students' Perceived social support. *Journal of College Students Development* 2008;49(6):625-632.
 18. Culver L, Operario D. Intergenerational linkage of AIDS: Vulnerability of orphaned children to HIV infection. *IDS Bulletin*. 2008;39(5).
 19. Atwin B. Cantor-Graae E. Psychological distress among AIDS orphans in rural Uganda. *Social science & Medicine* 2005;61:555-564.
 20. Carol Annzivor ,JA. Self-esteem of AIDS orphans: A Descriptive study. Unpublished Article, University of South Africa: 2007.
 21. Cluver L Fincham DS. Posttraumatic stress in AIDS orphans Exposed to high level of trauma: The protective role of perceived social support, *Journal of Traumatic Stress*, March, 2009;22(2):106-112.
 22. Hong Y, Lix X. Perceived social support and psychosocial distress among children affected by AIDS in China. *Community Mental Health Journal*, 2010;46(1):33-43.
 23. Canadian International Development Agency (CIDA). Securing the Future of Children and youth: CIDS'S children and youth strategies. Official Development Assistance Accountability Act C.17, 2008.
 24. Cluver LD, Gardner F. Risk and protective factors for psychological wellbeing of children orphaned by AIDS in Cape Town: A qualitative study of children and caregivers' perspectives. *AIDS Care* 2007;19(3):318-325.
 25. Makame V, Ani C. Psychological Well-being of orphans in Dar EL Salaam, Tanzania. *Acta Pediatric* 2002;91:459-465.
 26. MOLSA. Survey on the Prevalence and Characteristics of AIDS orphans in Ethiopia. Children and Family Affairs Department: Addis Ababa, Ethiopia; 2003.
 27. Cluver LD, Gardner F. Effects of Stigma on the Mental Health of Adolescents Orphaned by AIDS. *Journal of Adolescents Health* 2008;42: 410-417.
 28. Iglehart AP. 1994. Kinship foster care: Placement, services, and outcome issues. *Children and Youth Services Review* 1994;16:107-122.